

### ABSTRACT OF THE DISCLOSURE

A dynamically variable spectral matrix surround system decodes two-channel stereo into multi-channel surround. In one embodiment, the true stereo signal is present in left and right front and left and right surround channel outputs. When a dominant center channel signal appears, the system subtracts center channel audio from the critical voice band only. The higher frequency portion of the spectrum will remain true stereo at all times. In another embodiment, the front center signal bandwidth is determined. A dynamically variable portion of the audio spectrum is inverted and added to the opposite channel, thereby dynamically subtracting the bandwidth of the front center signal from the left front, left surround, right front and right surround channels but leaving the portion of the audio spectrum that does not contain front center information unaltered. The input is divided into two frequency bands. The low frequency portion remains true stereo at all times because only high frequencies are processed by cancellation steering. By dynamically varying the cancellation bandwidth in the left and right output channels, the typical audible dominance of the difference signals is greatly reduced. When the input contains a dominant left or right signal, the center front and surround channels are steered down in level so as to produce the output only in the front channels. When a dominant surround signal is present in the input, the front channels are steered down in level. Therefore, allows the system produces an output only in the channel where the originally encoded signal was intended.